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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,732	10/27/2003	Yong Min Ha	8733.889.00-US	9694

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EXAMINER

WU, XIAO MIN

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,732	HA ET AL.	
	Examiner	Art Unit	
	XIAO M. WU	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-22 is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-16, 23-28 and 30 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 17 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/17/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 8-16, 23-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (as shown in Figs. 1-4) in view of Moon (US 2002/0149575).

As to claim 1, Admitted prior art discloses an electro-luminescence display device, comprising: a panel (20); a plurality of data lines (DL) arranged within the panel; a supply voltage source (VDD) for applying a supply voltage to the panel; a data driver (24) for receiving externally inputted digital data signals and for applying analog data signals to the plurality of data lines in correspondence with the externally inputted digital data signals; a gamma voltage generator for generating a plurality of gamma voltages (31-35) having a plurality of voltage levels, wherein the gamma voltages are usable in forming the analog data signals. It is noted that

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the admitted prior art does not show a threshold voltage compensator arranged between the gamma voltage generator and the supply voltage source for controlling the supply voltage and for applying the controlled supply voltage to the gamma voltage generator.

Moon is cited to teach a flat panel display device similar to the admitted prior art. Moon further discloses a threshold voltage compensator (200, 300, Fig. 3) arranged between the gamma voltage generator (410) and the supply voltage source (100) for controlling the supply voltage and for applying the controlled supply voltage to the gamma voltage generator. It would have been obvious to one of ordinary skill in the art to have modified the admitted prior art with the features of the threshold voltage compensator as taught by Moon so as to adjust the gamma voltage level based on different conditions such as the viewing angles.

As to claim 2, the admitted prior art discloses the panels includes: a plurality of electro-luminescence cells (28) arranged in a matrix pattern; and a plurality of drive thin film transistors (T1, T2) for applying a current to corresponding ones of the plurality of electro-luminescence cells, wherein the current (I) corresponds to a reference voltage substantially equal to a difference between a threshold voltage of the drive thin film transistors and the supply voltage (VDD).

As to claims 3, Moon discloses the threshold voltage compensator lowers the supply voltage (e.g. using the voltage divider 200) and applies the lowered supply voltage to the gamma voltage generator (410).

As to claim 4, the admitted prior art discloses the gamma voltage generator divides the reference voltage (see Fig. 3 and 4)

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As to claim 5, Moon discloses the threshold voltage compensator includes at least one threshold voltage compensation thin film transistor (Q1).

As to claims 8, 30, the admitted discloses different gamma voltages applying to different color cells.

As to claim 9, Moon only shows one threshold voltage compensation thin film transistor. It would have been to have included three threshold voltage compensation thin film transistors connected to corresponding ones of the red, green, and blue gamma voltage suppliers because there are three color cells in the display panel.

As to claims 10-12, it would have been obvious to have used a scan tape carrier package for electrically connecting the scan driver to the panel; and a data tape carrier package for electrically connecting the data driver to the panel because the tape carrier package can save connection space..

As to claim 13, it would have been obvious to have use a flexible printed circuit for electrically connecting the threshold voltage compensator to the gamma voltage generator because it can provide a easy connection between two electronic components.

As to claims 14, 24-27, note the discussion of claim 1 above. Moon further discloses the threshold voltage compensator comprising a fixed resistor (R1) and a variable resistor (R2) connected in series to the supply voltage source and to a ground voltage source for dividing the supply voltage (V_{on}).

As to claim 15, Moon discloses a resistance of the variable resistor is adjustable such that pictures are displayable by the plurality of panels at a substantially uniform brightness (page 1, [008]).

As to claims 16, 28, the admitted prior art discloses a plurality of electro-luminescence cells (28) arranged in a matrix pattern; and a plurality of drive thin film transistors for applying a current (I) to corresponding ones of the electro-luminescence cells, wherein the current corresponds to the analog data voltage.

As to claim 23, note the discussion of claim 1 above. Moon further discloses wherein different gamma voltages are applicable by different gamma voltage generators such that pictures are displayable at a substantially uniform brightness by the plurality of panels (e.g. different viewing angle has different gamma voltage).

Allowable Subject Matter

4. Claims 18-22 are allowed.
5. Claims 6, 7, 17 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:
None of the prior art references, alone or in combination, teaches or fairly suggest the limitation of “a method of driving an electro-luminescence display device, comprising: providing a plurality of panels, wherein each panel includes a plurality of thin film transistors; providing a power voltage control circuit to each of the plurality of panels; providing a common power voltage to each of the power voltage control circuits; controlling a common power voltage applicable by each of the power voltage control circuits in accordance with a threshold voltage of the thin film transistors in each of the panels; and generating a gamma voltage within each of the panels using corresponding ones of the controlled common power voltages” as recited in

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independent claim 18.

None of the prior art references, alone or in combination, teaches or fairly suggest the limitation of “a method of driving an electro-luminescence display device, comprising: providing a plurality of panels; providing a plurality of thin film transistors within each of the plurality of panels, wherein each plurality of thin film transistors includes a threshold voltage; providing a gamma voltage generator to each of the plurality of panels for generating a plurality of gamma voltages; applying a common power voltage to each of the gamma voltage generators; and generating the plurality of gamma voltages in accordance with the threshold voltage of each plurality of thin film transistors” as recited in independent claim 21.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US 2002/0109655, 2002/0126112 and 2003/0122814 are cited a driving circuit for flat panel display device..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO M. WU whose telephone number is 571 272-7761. The examiner can normally be reached on 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK EDOUARD, can be reached on 571 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 14, 2005

x.w.



XIAO M. WU
Primary Examiner
Art Unit 2674